GIM INTERNATIONAL INTERVIEWS FIG PRESIDENT RUDOLF STAIGER

Supporting the Profession with Expertise, Proposals, Solutions and Platforms

The FIG president holds one of the most influential positions in the surveying field and helps to shape the profession. The new president, Rudolf Staiger, was elected during the Istanbul Congress in 2018 and officially took office for a period of four years in November. In this interview, *GIM International* asks him about his views on the profession, now and in the future, and also about who Rudolf Staiger actually is.

Congratulations on becoming the new president of FIG! Can you tell us a bit more about yourself?

Having grown up in the Black Forest in south Germany, I studied geodesy at the University of Karlsruhe, after which I spent a year in Paris, France, also studying geodesy, at the National Geographical Institute (IGN). After that I worked for a few years in the private sector, including at Wild, which was later taken over by Leica Geosystems and is now part of Hexagon. I then returned to the academic world, working as a researcher at the University of Essen and later Bochum. In Bochum I became vice-president of the university, responsible for research & transfer. I've always enjoyed sports; I used to swim, play volleyball and cycle, and nowadays I love going hiking and skiing – but unfortunately not as often as I would like.

Which positions have you previously held within FIG?

I have been active in FIG for 20 years. The first FIG event I attended was a Regional Conference in Malta organized by FIG Commission 5 back in 2000. I later became Chair of Commission 5 – Positioning and Measurement, and was appointed as chief editor for the peer-review process for the FIG Congress in Sydney in 2010. During that congress I was elected as vice-president for the 2011 to 2014 term, and in 2014 I was re-elected for a second period (2015-2018), before getting elected to become president last year in Istanbul.

Rudolf Staiger surrounded by representatives of the DVW, the German Society for Geodesy, Geoinformation and Land Management.

What are your main fields of interest within the university?

My main interests are close-range metrology, laser scanning and optical 3D coordinate measurement devices in general. More specifically, I'm interested in instrumentation and calibration as well as testing and checking procedures of surveying equipment.

How does that fit with your work for FIG?

During my time as commission officer, the work I did at the university was closely connected to my work within FIG. Now, as president, I need to have an overall perspective on FIG and the many and varied fields that surveyors are covering. There is still a link to my current work, but I've already discovered that my time as university vice-president was good preparation and valuable experience for my FIG presidency.

The profession is in transition. Which new challenges and opportunities is the digital transformation creating for surveyors?

We are currently facing a general and global transition. I see various challenges, such as the rapid pace of technological change and the transformation of our markets and products into becoming more open and less restricted. At the same time that presents an opportunity, because geospatial products are used by everybody – think of Google Maps or navigation for self-driving cars. Geospatial products are seen as part of a beneficial and necessary infrastructure for the development and well-being of our society, so our products have shifted from being 'invisible' or 'classified' to being an essential and important element of our future digital society. Today, one of the major challenges for surveyors is to show clearly why their professional knowledge is needed to secure and interpret data and optimize the use of the available technologies.

Another key challenge for the surveying profession is to attract new students to geomatics. What is the right strategy, in your opinion?

The answer to a young person's question 'What am I going to study?' is obviously heavily influenced by the image that they have of the various professions. But how and where is this image created? It is strongly influenced by TV, social media and – most importantly – in school. We should therefore go into schools and present the surveying and geospatial profession, because a lot of school pupils have no idea about our tasks, tools and the way we work. We need to show them current opportunities in our profession and at the same time highlight how interesting and beneficial it can be – also for society as a whole – to work in this industry.

The acceleration of urbanization worldwide is placing high demands on spatial planning. What is the surveying community's role?

First of all we have to deliver all the geographic material and data in maps, 3D models and so on which are necessary for the planning, construction and maintenance of our urbanized world. Spatial planning based on those products is also an important part of our profession. In this respect, our planning specialists should bring in their expertise and ideas, because the catalogue of demands is quite complex: we want to create a future society with improved living conditions, also taking account of aspects like climate change, sea-level rise, limited energy resources and affordable housing. Former FIG president Professor Holger Magel gave a very inspiring speech at the FIG handover meeting in Athens last November. A key point in his message was that if we want to slow down the pace of urbanization, we have to make rural areas more attractive. He underlined his approach using several examples from his home region of Bavaria.

Rudolf Staiger.

In 2015 the 17 Sustainable Development Goals (SDGs) were set by the United Nations General Assembly. How would you define the role of geospatial information in accomplishing these goals?

If you want to 'measure' the 17 SDGs and their degree of fulfilment, it is obvious that more than 70% of the goals are directly related to geospatial data. So the first priority for our profession is to deliver precise and up-to-date data enabling SDG-related performance to be measured. There is no doubt that the 17 SDGs are important milestones on the way to a better world in order to improve the living conditions for everybody. FIG will support the accomplishment of these goals without restrictions. The role of a professional organization like FIG is to offer expertise in the form of proposals, approaches or even solutions. In addition to this, with events like our Working Weeks and our Congress, FIG provides platforms where experts from all over the world – coming from academia (universities, research institutions), national mapping agencies, cadastre agencies, private-sector companies and international bodies – can gather and meet.

A well-functioning land administration system is an important pillar for national stability and social welfare. For many countries this still is quite a challenge. What's your vision on this?

I agree with this statement 100%. If you live in a well-developed country with an existing land administration system that has been up and running for decades, then it can be difficult to understand why the implementation of such a system is so difficult. That is understandable when seen from a technological point of view, but the technology-only view is far too limited and a little arrogant. It fails to take account of the lack of infrastructure (compared to better developed countries), the time factor (it took decades to implement our land registration systems) and the other non-technical aspects including the necessary financial efforts. Irrespective of this, a well-functioning land administration system is an indispensable pillar for national and regional stability, well-being, peace and social welfare. As a consequence, we have to support the implementation of land administration systems all over the world.

National mapping agencies take care of the national geospatial data enterprise, which is a huge task. What is their role in this age of digital transformation?

Up until 1990 the national mapping agencies, along with the national military institutions, had the exclusive access to geospatial data. Nowadays this is totally different: geospatial information has become a public good and is available in high quality, often free of charge. In addition to this significant change, we are facing another challenge in the form of big data. Due to the enormous progress in data acquisition, especially regarding the degree of automation and the speed, it will be essential to develop strategies and software solutions for the handling and treatment of the huge datasets which are collected every day.

It has been said that unmanned aerial vehicles (UAVs) are democratizing geoinformation and turning citizens into

surveyors. Is this a hype, or the new reality of a changing geospatial landscape?

It is also said that 'the difference between men and boys is the value of their toys!' This is one possible perspective if we talk about UAVs, but it's definitely too shortsighted because UAVs are offering fantastic opportunities. Let's start with the technical part: at first glance, a UAV is nothing more then a 'flying tripod'. But combining this with new digital cameras and treating the acquired data with SLAM software packages, such as Agisoft, gives us totally new and exciting products and tools which can be used in a variety of applications. In this respect, UAVs can become a basic toolset for our entire profession. However, there are also some threats. The first is safety, for instance – especially when flying over inhabited areas. As far as I know there haven't been any UAV-related fatalities so far, and I hope this will remain so in the future, but there is a general risk of administrative restrictions due to (potential) accidents. Secondly, privacy. In general, we don't want to be observed or inspected in detail on our private property and in our homes by our neighbours, private companies, authorities or anybody else using a UAV! So in conclusion, I am convinced that UAVs and their usage for the collection of geospatial data is very promising. Over the next decades UAVs will become an essential tool, providing that we find solutions and reach agreements regarding flight safety and the privacy of individuals.

Hagen Graeff and Louise Friis-Hansen present Rudolf Staiger with the ceremonial chains of office.

In the light of all the above, what will be FIG's role in the changing landscape?

FIG is a professional organization of volunteers. Our goal is to promote the profession as a whole. In this light, we will of course also promote technology, but at the same time we have to create awareness for the risks as mentioned.

In general, how do you see the future of the geospatial societies?

As geospatial societies, we play a very important role today: we offer a global platform of exchange for our stakeholders – authorities (national and international), administration, private companies, education and manufacturers. The geospatial societies are supporting and promoting our profession as an entity and our approach is non-commercial and for the sake of the whole profession and our society.

Which main goals do you hope will be achieved during your presidency?

The FIG 'brand' is very well known and we are the biggest international society representing the geospatial and surveying profession on a very broad base. Nevertheless, except for our FIG office in Copenhagen, we are all volunteers. We have to strengthen our organization and prepare it for the near future. One of the major tasks will be to activate people who are willing to contribute to all FIG's commissions, networks and taskforces in the future. Also, we have to prepare our members for rapid and fast technological change, including the digital transformation and the resulting opportunities. And, last but not least, we want to continue playing an active and well-respected role within the UN system, together with the World Bank and other organizations.

In four years from now, you will be able to look back on the outcomes of your presidency. What would make you really proud?

I would be very proud if FIG has gained an even stronger position as one of the leading geospatial societies and if the current generation of FIG Young Surveyors has become active as the next generation of FIG.

What's your message for the readers of GIM International?

In these times of 'fake news', it is very important that our sources of information, including regarding our profession, are accessible, factual, objective and independent. *GIM International* is such a source. Use it!

About Rudolf Staiger

Rudolf Staiger studied geodesy in Karlsruhe (Germany) and Paris (France). After working in the private sector for a few years, he returned to the academic world and became professor of applied geodesy with a focus on instrumentation at the University of Essen in 1994. He has held the same position at the University of Bochum since 2005, where he is also vice-president of research and transfer. Staiger has been active in FIG in numerous positions since 1997, becoming vice-president in 2010 and president in 2018. Staiger has published articles in more than 60 publications, including the textbook titled *Instrumentenkunde der Vermessungstechnik* (Wichmann-Verlag, Heidelberg, 2002).